

CLAIMS

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1. A biaxially oriented film comprising a polymer alloy composed of polyester (polymer 1) and a thermoplastic resin (polymer 2) other than the polyester as essential components, 5 wherein micro protrusions having a height of 2 to 50 nm are formed at a density of 1,000,000 to 90,000,000/mm<sup>2</sup> on at least one surface.

2. A biaxially oriented film according to Claim 1, wherein the number of the micro protrusions is 3,000,000 to 60,000,000/mm<sup>2</sup>.

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3. A biaxially oriented film according to Claim 1 or 2, wherein the height of the micro protrusions is 2 to 30 nm.

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4. A biaxially oriented film according to Claim 1, wherein at least some of the micro protrusions are made of the polymer 1 or the polymer 2.

5. A biaxially oriented film according to Claim 4, wherein 30% or more of the micro protrusions are made of the polymer 1 or the polymer 2.

20 6. A biaxially oriented film according to Claim 1, wherein the polymer 2 has a higher glass transition temperature (T<sub>g</sub>) than the polymer 1.

7. A biaxially oriented film according to Claim 1, wherein the polymer 2 has compatibility with the polymer 1.

25 8. A biaxially oriented film according to Claim 1, wherein the polymer 2 comprises at least one thermoplastic

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resin selected from polyimide, polysulfone, and polyethersulfone.

9. A biaxially oriented film according to Claim 8, wherein the polymer 2 comprises polyimide.

5 10. A biaxially oriented film according to Claim 9, wherein the polymer 2 comprises polyetherimide.

11. A biaxially oriented film according to Claim 1, wherein the polymer 1 comprises polyethylene terephthalate.

12. A biaxially oriented film according to Claim 1, wherein the number of the protrusions having a height of 50 nm or more is 3000/mm<sup>2</sup> or less.

13. A biaxially oriented film according to Claim 1, wherein the number of the protrusions having a height of 30 nm or more is 1500/mm<sup>2</sup> or less.

15 14. A biaxially oriented film comprising a film (A layer) according to Claim 1 laminated as at least one of outermost layers of a base layer (B layer).

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15. A biaxially oriented film according to Claim 14 comprising a film (A layer) according to Claim 1 laminated as one of the outermost layers of the base layer (B layer), and another film (C layer) laminated as the opposite outermost layer to form a laminated structure comprising at least three layers including the A layer, the B layer and the C layer.

25 16. A biaxially oriented film according to Claim 14,

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cat wherein the surface roughness  $Ra_A$  on the A layer side is 0.2 to 10 nm, the surface roughness  $Ra_C$  on the C layer side is 1 to 30 nm, and  $Ra_C$  is larger than  $Ra_A$ .

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B3C 17. A biaxially oriented film according to Claim 14, wherein the base layer (B layer) comprises the polymer 1 or the polymer alloy composed of the polymer 1 and the polymer 2 as the essential components.

18. A biaxially oriented film according to Claim 14, wherein the number of the protrusions having a height of 50 nm or more on the A layer side surface is 3000/mm<sup>2</sup> or less.

19. A biaxially oriented film according to Claim 14, wherein the number of the protrusions having a height of 30 nm or more on the A layer side surface is 1500/mm<sup>2</sup> or less.

20. A biaxially oriented film according to Claim 14, wherein the content  $W_A$  (% by weight) of the polymer 2 of the A layer and the content  $W_B$  (% by weight) of the polymer 2 of the B layer satisfies the following relations:

$$0 \leq W_B \leq 40$$

$$5 \leq W_A \leq 50$$

$$10 \leq W_A - W_B \leq 40$$

21. A biaxially oriented film according to Claim 14, wherein the content  $W_A$  (% by weight) of the polymer 2 of the A layer and the content  $W_B$  (% by weight) of the polymer 2 of the B layer satisfies the following relations:

$$0 \leq W_B \leq 25$$

$25 \leq W_A \leq 40$

$10 \leq W_A - W_B \leq 40$

22. A biaxially oriented film according to Claim 14, wherein the A layer contains substantially no inert particle.

23. A biaxially oriented film according to Claim 14, wherein the A layer contains 0.001 to 2% by weight of inert particles having an average particle diameter of 0.01 to 2  $\mu\text{m}$ .

24. A biaxially oriented film according to Claim 23, wherein the A layer contains 0.01 to 1% by weight of inert particles having an average particle diameter of 0.01 to 1  $\mu\text{m}$ .

25. A biaxially oriented film comprising a laminated structure of at least three layers including A layer, B layer and C layer, wherein the A layer comprises a film composed of polyester and polyetherimide and has a surface roughness  $Ra_A$  of 0.2 to 10 nm, and the layer opposite to the A layer has a surface roughness  $Ra_C$  is 1 to 30 nm.

26. A biaxially oriented film according to Claim 25, wherein the surface roughness  $Ra_A$  of the A layer is 0.5 to 5 nm, the surface roughness  $Ra_C$  of the layer opposite to the A layer is 5 to 15 nm, and  $Ra_C$  is larger than  $Ra_A$ .

27. A magnetic recording medium comprising a biaxially oriented film according to any one of Claims 1 to 26, and a magnetic layer provided on one side of the biaxially

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oriented film.

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28. A magnetic recording medium according to Claim 27, wherein the magnetic layer comprises a ferromagnetic metal thin film.

5 29. A magnetic recording medium according to Claim 27, wherein the magnetic layer comprises a ferromagnetic metal fine powder dispersed in a binder.

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